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# THE IMPLEMENTATION OF INDONESIA AND THE UNITED KINGDOM'S INTERNATIONAL COOPERATION ON BANDUNG CITY'S DISASTER RISK STUDY

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## ABSTRACT

This study analyzes the implementation of international cooperation in responding to seismic disaster risk in the Bandung area. This study specifically examines how the problem of seismic risk not only requires the capacity of the city government, but also requires cooperation in scientific knowledge involving various actors across institutions and countries. The Bandung City Government recognizes this urgency and proposes the need for research support to understand the level of exposure to hazards to the community and infrastructure more comprehensively. The Bandung Institute of Technology (ITB) then showed its contribution through a research collaboration with the British Geological Survey (BGS) and the University of Leeds, along with researchers from the National Innovation Research Agency (BRIN) and the Resilience Development Initiative (RDI). The research uses a qualitative approach with a descriptive type. Data was obtained through documentation studies of official government documents, documents of institutions involved in the project, and secondary sources in the form of relevant news and publications. The analysis uses the framework for the implementation of international cooperation, especially regulatory follow-up, resource allocation and coordination, as well as back-the-border and beyond-the-border cooperation. The results show that the implementation of cooperation takes place through institutional arrangements and coordination, resource mobilization, and the implementation of research activities that connect domestic and international actors. The strongest conformity with the Paulo framework is seen in the allocation and coordination of resources as well as cooperation behind-the-border and beyond-the-border. Meanwhile, the regulatory follow-up aspect can only be proven in a limited way because the available data show more coordination and implementation arrangements than formal regulatory changes. This research suggests that international cooperation can be translated into cross-border research activities to respond to public needs at the local level, although Paulo's framework does not yet fully explain the dynamics of knowledge production and the use of research results in domestic policy.

**Keywords:** Bandung City, Disaster Risk Study, Indonesia, International Cooperation, United Kingdom

## INTRODUCTION

The city of Bandung is one of the urban areas that faces the potential risk of geological disasters, especially earthquakes. Geographically, the city of Bandung is located in the Bandung Basin area which is surrounded by a number of earthquake sources and active faults, including the Lembang Fault in the north. This condition is increasingly important because the city of Bandung has a high population density and buildings, increasing the number of people and assets that are potentially affected in the event of an earthquake disaster (Bandung City Government, 2023). The Bandung City Government document also identifies a number of areas of the city of Bandung as earthquake-prone areas and records the existence of several sources of earthquake threat around urban areas (Bandung City Government, 2023). These risks are not only related to the existence of earthquake sources, but also to the level of exposure of people and infrastructure in urban areas.

The magnitude of this potential exposure shows that disaster risk reduction in the city of Bandung requires a more comprehensive understanding of the characteristics of hazards and the communities and infrastructure that are potentially affected. This is even more important because research led by the British Geological Survey (BGS) shows that around 1.9–2.7 million people in the Bandung metropolitan area can be exposed to strong shocks in a major earthquake scenario on the Lembang Fault (BGS, 2024). The need for a more detailed understanding of risks then encourages the strengthening of science and technology-based studies. In this context, the Bandung City Government in January 2024 is said to propose the need for research support to understand the level of exposure to hazards to the community and infrastructure more comprehensively (ITB, 2025). These needs were then responded to through research collaborations involving Indonesian and British institutions.

Such research cooperation is important because disaster risk reduction not only requires action after a disaster occurs, but also requires scientific information that can be used to identify potential hazards, levels of exposure, as well as at-risk community groups and infrastructure. These needs are reflected in the project ‘Exposed: Physical and Social Exposure to Seismic and Volcanic Threats in Bandung’, Indonesia, which involved the British Geological Survey, the University of Leeds, the Bandung Institute of Technology, BRIN, and the Resilience Development Initiative. The project is directed to develop earthquake and volcanic hazard scenarios, model the exposure of the City of Bandung, as well as develop urban resilience and community involvement (RDI, 2025). International cooperation in this case is not only in the form of inter-agency relations, but also a mechanism to generate knowledge that can be used in understanding disaster risk at the local level (Bandung City Government, 2023).

However, the existence of such research cooperation raises further problems than just the need for information on disaster risk. The Exposed project brings together various institutions from Indonesia and the United Kingdom to generate knowledge about seismic and volcanic threats as well as community and infrastructure exposure in the city of Bandung (RDI, 2025). On the one hand, the cooperation shows that local needs for risk knowledge can be supported through international collaboration. On the other hand, the formation of cooperation and the implementation of research activities have not in themselves shown how the objectives of the cooperation are translated into joint work processes, division of roles, resource utilization, knowledge exchange, and

coordination between international and domestic actors. Thus, there is a gap between the objectives of the cooperation that have been formed and the process of implementing them in responding to disaster risk needs at the local level. This issue is important to study because the success of international cooperation is not only determined by the formation of agreements or the implementation of activities, but also by how these commitments are implemented by the parties involved.

This issue becomes even more relevant when placed in the study of International Relations regarding international cooperation at the local level. Previous research on sister city cooperation in the field of disasters shows that intercity relations can be a means of knowledge exchange, capacity building, and strengthening disaster management efforts at the regional level (Bandung City Government, 2025). Other research also shows that regional international cooperation can provide benefits through the exchange of experiences, technical support, and institutional capacity building in dealing with disaster problems (RDI, 2025). However, attention to such cooperation is more directed at the form of relationships between local governments, the benefits of cooperation, or the results obtained through intercity relations. The aspect of how such cooperation is implemented through the coordination of various actors and resources in a cross-border research project is still not widely explained.

This distinction is important because the Exposed project not only brings together local governments through sister city mechanisms, but involves a more complex network of actors, namely the British Geological Survey, the University of Leeds, the Bandung Institute of Technology, BRIN, and the Resilience Development Initiative (RDI, 2025). The complexity of these actors makes the implementation of cooperation not sufficiently understood only through intergovernmental relations or the existence of formal agreements. Implementation needs to be seen through how the objectives of cooperation are translated into activities, how resources and expertise are shared, how inter-agency roles are regulated, and how coordination takes place between international and domestic actors. Thus, the case of Bandung provides space to understand forms of international cooperation that take place through cross-institutional and research-based collaboration, not solely through relationships between local governments.

This condition shows that there is a gap in the study of the implementation of international cooperation at the local level. Studies on regional international cooperation have shown that cross-border relations can support local governments in gaining knowledge, experience, and capacity to deal with common problems (Bandung City Government, 2025). However, the study has not fully explained how cooperation involving governments, research institutions, universities, non-governmental organizations, and international actors translates into the implementation process at the local level. This study fills the space by not only looking at the existence of cooperation or the results of the research produced, but also analyzing the implementation process, especially in terms of institutional arrangements, role sharing, resource coordination, knowledge exchange, and implementation of collaborative activities.

The study is important because implementation is the stage that determines whether international cooperation commitments can be translated into activities and resources that are relevant to local needs. In the case of the City of Bandung, the need to strengthen risk understanding is still an important part of disaster risk reduction efforts (Bandung City Government, 2023). Exposed research then produces knowledge about community and infrastructure exposure to seismic and volcanic threats (BGS, 2024; RDI, 2025).

However, the value of such cooperation from the perspective of International Relations lies not only in the results of the research, but also in the process of how the knowledge, expertise, resources, and capacities possessed by actors from the two countries are brought together and managed in a joint activity. Therefore, examining the implementation of Indonesia-UK cooperation in the Exposed project can provide a deeper understanding of how international cooperation is implemented through cross-actor collaboration to respond to needs at the local level.

Based on these conditions, this study aims to analyze the implementation of Indonesia-UK international cooperation in disaster risk study in the city of Bandung through the Exposed project. The analysis is directed at institutional arrangements, division of roles, utilization and coordination of resources, exchange of knowledge, and implementation of collaborative activities by the actors involved. This goal is important because it can contribute to the study of International Relations regarding the implementation of international cooperation at the local level, especially by expanding attention from intergovernmental cooperation or sister city cooperation to cooperation involving research institutions, universities, non-governmental organizations, and local actors. Thus, this research is expected to complement previous studies by providing an explanation of how international cooperation across institutions is implemented in generating knowledge and supporting disaster risk reduction needs at the local level.

## LITERATURE REVIEW

### International and Global Cooperation/ Domestic Public Goods

International cooperation is a form of interaction between countries and cross-border actors to achieve certain interests or goals that cannot always be realized by one actor independently. In its development, international cooperation does not only take place through intergovernmental relations, but also involves research institutions, non-governmental organizations, academics, and other actors. The involvement of these various actors is becoming increasingly important in issues that require cross-border exchange of knowledge, resources, and capacity, including environmental and disaster issues. Paulo (2014) explained that international cooperation can be understood through its relationship with the provision of Global Public Goods (GPG) and Domestic Public Goods (DPG). GPG refers to benefits that are cross-country, while DPG is related to public benefits that are mainly felt in the domestic scope (Paulo, 2014). In certain contexts, the provision of DPG may require international contributions and cooperation because the capacity required to generate such benefits is not fully available at the domestic level. This perspective is relevant to research on disaster risk studies in the City of Bandung because the need for risk knowledge and information is at the local level, while the production process can involve resources, expertise, and institutions from more than one country (Paulo, 2014).

However, the concepts of GPG and DPG in this study are not used as the main analytical framework. The concept is used to provide context that international cooperation can connect public needs at the domestic level with the contribution of cross-border actors. The main problem of this research is then directed to a more specific question, namely how the cooperation that has been formed is implemented in the disaster risk study activities of the City of Bandung.

**Implementation of International Cooperation**

Implementation is important because the formation of an international cooperation does not automatically indicate that the commitments in it have been implemented. Implementation refers to the process of translating cooperation commitments into action, regulation, resource mobilization, and observable activities. In the context of international cooperation, these processes can take place simultaneously at the domestic level or through cross-border relations. Paulo (2014) provides a framework to understand the implementation of cooperation through several activities that include regulatory follow-up, resource allocation, and cooperation behind-the-border and beyond-the-border (Paulo, 2014).

First, regulatory follow-up is used to see how cooperation commitments are translated into arrangements that allow cooperation to be implemented. Implementation is seen not only from the existence of formal agreements, but also from the rules, procedures, approvals, permits, and institutional mechanisms necessary to carry out cooperative activities (Paulo, 2014). In this study, the indicators can be used to identify various forms of administrative and institutional follow-up that enable the conduct of research, including research ethics approval, research licensing, as well as arrangements related to the involvement of researchers and foreign institutions.

Second, resource allocation and coordination of resources is used to see how the resources needed in cooperation are provided, shared, and coordinated between parties. The resources in this study are not limited to funding, but include human resources, scientific expertise, knowledge, data, technology, and research facilities (Paulo, 2014). This indicator allows the study to see how Indonesian and UK institutions contribute and how these contributions are coordinated in the implementation of disaster risk studies. Thus, the existence of funding, such as the research grant mechanism, is not only seen as an administrative fact, but as part of the process that allows cooperation activities to take place.

Third, cooperation behind-the-border and beyond-the-border used to see how implementation takes place within domestic boundaries as well as through cross-border interactions. Behind-the-border cooperation refers to the actions taken by actors within their respective regions to carry out cooperation commitments (Paulo, 2014). The indicators can be in the form of coordination between domestic institutions, the implementation of research activities in Indonesia, local data collection, and the involvement of the government and the community in research activities. Meanwhile, beyond-the-border cooperation used to see activities that require interaction between Indonesian and British actors, such as researcher coordination, exchange of knowledge and expertise, data exchange, preparation of methodologies, and implementation of joint research activities.

These three activities are not understood as fully linear stages. In the implementation of research cooperation, regulatory follow-up, resource provision, and cross-border interaction can take place simultaneously and influence each other. The implementation of research activities can also result in the need for coordination, additional resources, or arrangements (Paulo, 2014). Thus, implementation is understood as an interactive process between the commitment of cooperation and the actions of the actors in conducting the research. The process allows international cooperation to generate knowledge, data, and capacity relevant to the needs of disaster risk studies at the local level.

Based on this concept, this study uses three main indicators of the implementation of international cooperation according to Paulo (2014), namely (1) regulatory follow-up, (2) resource allocation and coordination, and (3) cooperation behind-the-border and beyond-the-border (Paulo, 2014). The three indicators were used to answer the formulation of the problem of how to implement Indonesia-UK international cooperation in the Bandung City disaster risk study, by looking at the relationship between cooperation arrangements, resource mobilization, interaction between parties, and the implementation of research activities in the project exposed.

**Research Authenticity**

The literature on international cooperation shows that cooperation can no longer be understood only as a formal relationship between governments, but develops into a process that involves various actors, resources, knowledge, and institutional mechanisms to respond to problems that cannot be solved independently by one country. Paulo (2014) explained that international cooperation is an interaction to achieve a common goal when the preferences of the actors are not completely the same, but are also not in a condition of conflict that cannot be met. In this framework, international cooperation is related to the provision of Domestic Public Goods (DPG) and Global Public Goods (GPG), because certain domestic needs can be supported through international cooperation, while cross-border issues require collective action.

This thinking was then expanded by Kaydor (2023) who explained that international cooperation is developing beyond traditional bilateral and multilateral forms to a global network involving state and non-state actors to achieve common goals. Kaydor (2023) also shows that international cooperation is related to efforts to generate public benefits at the national and global levels. In this development, Janus, Klingebiel, and Paulo (2014) explain the transformation of development cooperation through the perspective of Beyond Aid which includes four dimensions, namely actors, finance, regulation, and knowledge. These four dimensions show that cooperation is not only related to formal relationships, but also to who is involved, how resources are mobilized, how regulations are formed, and how knowledge is produced and exchanged. This perspective is relevant to this study because disaster risk research cooperation involves various actors and requires resources, regulations, and knowledge to be carried out.

At the subnational level, Issundari (2024) through his study of the Yogyakarta-Gyeongsangbukdo cooperation shows that the implementation of international cooperation is also influenced by the government's readiness to carry out the stages of cooperation and public participation in the implementation and management of activities. Furthermore, international cooperation in the field of science can be understood through the perspective of science diplomacy, especially when scientific knowledge is used to respond to problems that are cross-border. Kontar, Ismail-Zadeh, Berkman, Duda, Gluckman, Kelman, and Murray (2021) show that science diplomacy can support disaster risk reduction through the exchange of knowledge, information, and strategies in monitoring, assessing, and reducing disaster risk.

In the context of disaster research cooperation, Pelling, Amaratunga, Bucher, Buller, Collins, Dawson, Deshpande, Donovan, Heintz, Intepe, Marsden, Morin, Murray, Phillips, and Sargeant (2023) show that research on the intersection between international development and disaster risk reduction is related to the issues of research impact, co-production, and interdisciplinary nature in research practice. Meanwhile,

Omukuti, Barlow, Megaw, Altink, and White (2021) show the importance of partnerships between non-governmental organizations and researchers in leveraging data to expand the knowledge base on disaster risk management. They also show that research partnerships can connect different data owners and expertise in generating a better understanding of risk. This is reinforced by the study of partnerships in the provision of data for impact forecasts and warnings, which shows that collaboration and partnership are needed to access, collect, and produce data on hazards, exposures, vulnerabilities, and impacts of disasters. In this process, inter-agency communication, joint training, and joint definition of needs are important parts of the implementation of cooperation (2024).

Furthermore, Vollmer, Berchtold, and Anniés (2025) show that multi-country disaster risk reduction research projects can use a *co-creation* approach, which involves various stakeholders from needs identification to solution development and implementation. The study shows that multi-country projects face challenges in the form of differences in language, funding, number of actors, distribution of power, time, and resources, but at the same time can bring together needs with solutions through relationships and collaborative networks. Meanwhile, Iao-Jörgensen (2024) shows that multistakeholder networks can support collaborative capacity building in disaster risk management through social learning processes and inter-stakeholder relationships.

Another study on international cooperation in the context of BRI also shows how cooperation can be linked to the provision of public goods and development interests, as shown by Indraswari and Lestari (2022) in a study on the impact of the COVID-19 pandemic on BRI in the European region. Based on the overall literature, it can be seen that research on international cooperation has discussed actors, regulations, funding, knowledge, science diplomacy, data exchange, capacity building, and co-creation in various forms of cooperation. However, these studies have not specifically placed the process of implementing international cooperation in disaster risk studies at the city level as the focus of analysis, especially by linking the arrangements of cooperation, resources, and domestic and cross-country interactions in one implementation process.

Therefore, this study places implementation as the main focus by adapting the framework of Paulo (2014), especially through three aspects of analysis, namely (1) regulatory follow-up, (2) resource allocation and coordination, and (3) behind-the-border and beyond-the-border cooperation relations. These three aspects are used to see how Indonesia-UK cooperation translates into the implementation of disaster risk studies in the City of Bandung through the Exposed project. Thus, the authenticity of this study lies in the focus of analysis on the implementation process of Indonesia-UK international cooperation in the study of disaster risk in the city of Bandung, not solely on the existence or benefits of the cooperation, by linking aspects of regulations, resources, and domestic-cross-country interaction with the process of implementing disaster research.




**Figure 1. Conceptual Framework**

Source: Analysis by the researcher based on Paulo's framework

## METHOD

This research uses a qualitative approach with a descriptive type of research. The qualitative approach is used because the research focuses on understanding the process of implementing Indonesia-UK international cooperation in the study of the Bandung City disaster risk, which is not directed to quantitatively measure the relationship between variables, but to understand the process, activities, and relationships between parties in the context of the cooperation. Creswell explained that qualitative research is suitable to be used when researchers need to understand a problem in a certain context or setting and explain the processes and relationships that occur in it (Creswell, 2013). In line with that, Sugiyono explained that qualitative research is used to research the natural conditions of objects with the researcher as the main instrument and the results of the research emphasize meaning rather than generalization (Sugiyono, 2019). The descriptive type is used to systematically describe how Indonesia-UK cooperation is implemented in the disaster risk study of the City of Bandung through the Exposed project, especially based on three aspects of analysis, namely regulatory follow-up, resource allocation and coordination, and behind-the-border and beyond-the-border cooperation relations.

The unit of analysis in this study is the Bandung City Government, because the city government is a domestic actor that has direct needs and interests in the study of disaster risk in the Bandung City area and is part of the local context where the results and activities of research cooperation are implemented. The determination of the unit of analysis is related to the focus of research that places the process of implementing cooperation at the domestic level as part of international relations. Meanwhile, the level of research analysis is at the state level analysis, because the cooperation studied is an international relationship between Indonesia and the United Kingdom, even though the implementation involves research institutions and the government at the local level. In Mochtar Mas'oed's thought, the determination of the level of analysis is necessary to determine the unit whose behavior is the main focus in explaining an international relations phenomenon (Mas'oed, 1990). Thus, this study distinguishes between the unit of analysis, namely the Bandung City Government as the actor observed in the

implementation process, and the level of analysis, namely the country because of the cooperation that is the context of the ongoing research between Indonesia and the United Kingdom.

The social situation in this study refers to the context of places, activities, and actors related to the implementation of disaster risk research cooperation in the City of Bandung. Referring to Sugiyono (2019), the social situation can be understood through three elements, namely place, activity, and actor. The element of place in this study is the city of Bandung as the location of disaster risk studies and the space for the implementation of research activities. The elements of activities include activities related to the implementation of cooperation, such as research arrangements, inter-institutional coordination, data collection and exchange, joint research activities, and the involvement of local actors. Meanwhile, the element of actors includes the Bandung City Government and parties involved in Indonesian-UK research cooperation, including Indonesian and UK research institutions related to the Exposed project. The social situation is a context to explore how international cooperation translates into concrete activities at the local level.

The technique of determining data sources uses purposive sampling by selecting documents that are directly related to the implementation of Indonesia-UK cooperation in the Bandung City disaster risk study. The selection of sources is not based on the number of documents, but on the relevance of the documents to the formulation of problems and research indicators. The main sources of research are official documents of the Bandung City Government, especially the Strategic Plan, News and Performance Reports of Government Agencies (LKjIP/LKJ), and other primary government documents related to disasters, planning, cooperation, and implementation of research activities. The Strategic Plan is used to see the policy direction, needs, planning, and priorities of local governments related to disaster risk, while LKJ/LKjIP is used to see the implementation and achievements of government activities related to the agenda. The use of documents as the main source was chosen because the implementation of cooperation has an administrative and institutional footprint that can be traced through official documents, thus allowing researchers to identify regulatory follow-up, resource use, institutional coordination, and cooperative activities without having to rely on direct observation of activities taking place in the field.

This study does not use field observation as the main technique of data collection. The consideration is that the research focuses on the implementation of cooperation that can take place through administrative processes, institutional coordination, data exchange, and research activities whose time cannot always be known or observed directly by the researcher. In addition, the limited time and absence of researchers at the site during the entire implementation process cause direct observation cannot provide a complete picture of the entire cooperation process. Therefore, the research prioritizes official documents that record the implementation process and activities, then strengthen it with secondary sources in the form of news from credible media, institutional publications, and other relevant sources of information. Secondary sources are used as supporting data to help provide context and check the information found in the primary document.

The validity of the data is carried out through source triangulation, which is comparing information obtained from various sources to see the consistency of information regarding the cooperation implementation process. Data in the Strategic Plan,

LKJ/LKjIP, official government documents, publications of research institutions, and news are compared based on information related to three aspects of implementation, namely regulatory follow-up, resource allocation and coordination, and behind-the-border and beyond-the-border cooperation. Source triangulation is used so that research findings do not only depend on one document or one institution, but are examined through other relevant sources. Thus, information that has compatibility between sources can be used as a stronger basis in explaining the cooperation implementation process.

The data analysis technique uses the Miles and Huberman interactive analysis model which includes data reduction, data display, and conclusion drawing/verification. The three activities take place interactively and do not have to be done in a linear manner. In the data reduction stage, the researcher selects, focuses, and groups data from the document based on research needs and three indicators of cooperation implementation. Data related to regulations, resources, coordination, domestic activities, and cross-border activities are separated from irrelevant information. In the data display stage, the selected data is arranged in the form of narrative descriptions and matrices to show the relationship between actors, forms of activities, resources, regulations, and activities behind the border and beyond-the-border. The presentation is used to make it easier for researchers to see patterns and relationships in the implementation process. Furthermore, at the conclusion drawing/verification stage, the researcher draws conclusions about how Indonesia-UK cooperation is implemented in the Bandung City disaster risk study by continuing to verify evidence from various sources. Miles and Huberman's model views analysis as an interactive process that takes place during the research process, so that drawing conclusions can again encourage the examination of the data that has been collected.

## RESULT & DISCUSSION

### Implementation of Indonesia-UK Cooperation in the Bandung City Disaster Risk Study

The results of the document search show that Indonesia-UK cooperation in the disaster risk study of the City of Bandung was carried out through the project Exposed: Physical and Social Exposure to Seismic and Volcanic Threats in Bandung, Indonesia. The project involved the British Geological Survey (BGS) and the University of Leeds from the United Kingdom together with the Bandung Institute of Technology (ITB), the National Research and Innovation Agency (BRIN), and the Resilience Development Initiative (RDI) from Indonesia. This project was carried out in the period from January 2025 to January 2026 and is directed to understand seismic and volcanic threats, community and infrastructure exposure, and strengthening community resilience in the city of Bandung (RDI, 2025).

The implementation of this cooperation is not only seen from the formation of research projects, but also from activities that bring together research actors and the government. One of the important activities is the kick-off of the project which will be held on June 8, 2025. The activity brings together researchers from Indonesian and British institutions with policy makers, including the Bandung City Government and the West Java Provincial Government. In this activity, each working group presented the research approach to be carried out and continued with a discussion on the research activity plan (RDI, 2025).



**Figure 2. Exposed Project Kick-off Documentation**
Source: Resilience Development Initiative (RDI), 2025

The data shows that the cooperation has entered the implementation stage. Cooperation does not stop at the institutional relationship between Indonesia and the UK, but has resulted in research activities involving various actors. At this stage, the Bandung City Government has an important position because the problems being studied are problems that are in the domestic region and authority, while the research capacity used comes from cross-border collaboration.

This condition can be placed in Paulo (2014's) thinking about the relationship between international cooperation and Domestic Public Goods (DPG). Paulo (2014) explains that certain domestic public needs can be supported through international cooperation when the necessary capacity is not fully available at the domestic level. In the case of Bandung, the need to understand disaster risk is at the local level, while the research process involves expertise, resources, and institutions from Indonesia and the UK.

Thus, empirical findings show a link between domestic needs and international cooperation as explained by Paulo (2014). However, these relationships do not by themselves explain the entire implementation process. To find out how the cooperation is actually carried out, it is necessary to look further at follow-up actions, resources, and relationships between parties during the study.

**Follow-up of Cooperation through Arrangement and Coordination**

In the implementation of the collaboration, it was found that there were a number of follow-up actions that made the research project feasible. The kick-off activity on June 8, 2025 is one of the proofs that the cooperation has been translated into a more concrete activity agenda. In this activity, the researchers conveyed the contribution of each working group and discussed the research plan together with policymakers (RDI, 2025). In the project implementation document, research is divided into several focuses related to geological hazards, physical and social exposure, and community resilience. The division shows that the implementation of cooperation requires coordination regarding who conducts the research, what approach is used, and how the research results can be related to policy needs in the city of Bandung (RDI, 2025).



**Figure 3. Discussion and Coordination in the Implementation of Exposed Project**
Source: Resilience Development Initiative (RDI), 2025.

These findings are in accordance with Paulo's (2014) thoughts regarding further decision-making and regulatory actions. According to Paulo (2014), implementation is not only related to the existence of cooperation decisions, but also requires decisions and follow-up actions that allow the commitment to be carried out. In the context of this study, the coordination and distribution of research activities shows that there is a process of concretizing cooperation.

However, the available data also show the limits of these indicators. Paulo's concept of regulatory follow-up is broader than just coordinating research activities. If the PPID document does not adequately show any regulatory changes, new rules, special procedures, or administrative decisions that were directly born as a follow-up to the cooperation, then the research findings should not indicate that all aspects of Paulo's regulatory follow-up were met.



**Figure 4. Coordination in the Implementation of Exposed Project**
Source: Resilience Development Initiative (RDI), 2025.

Under these conditions, a more appropriate finding is that the decision follow-up aspect in Paulo's thought is visible, mainly through the coordination and regulation of the implementation of the research, but the regulative aspect in a more formal sense has not been fully proven. This distinction is important because the study does not force the data to fit the theory.

**Resource Allocation and Coordination**

The implementation of the Exposed project also shows the mobilization of various resources. The project received support through the International Science Partnership Fund (ISPF), while the research implementation involved researchers and institutions with different expertise. BGS and the University of Leeds brought research capacity from the UK, while ITB, BRIN, and RDI provided research capacity and knowledge about the Indonesian context. The Bandung City Government is also involved in research relations by providing local context and needs (RDI, 2025).

The resources used in cooperation are not only in the form of funding. Research on disaster risk requires experts, data, research methods, technology, and access to local actors and information. In the Exposed project, the division of research groups shows the use of different expertise to assess community hazards, exposures, and resilience (RDI, 2025).

The findings have a strong compatibility with the second indicator of Paulo (2014), namely the allocation and use of resources and coordination between actors who provide resources. Paulo (2014) places resources as an important part of implementation because a cooperation decision cannot be implemented if the necessary resources are not available or cannot be coordinated.

In the case of Bandung, ISPF funding is one of the resources that supports the implementation of research. However, the funding does not work alone. Research can be carried out because there is a combination of human resources, scientific expertise, data, technology, and institutional capacity. Thus, empirical findings show that Paulo's concept of resources can explain how the cooperation acquires the capacity to be implemented.

In this section, Paulo's thinking is relatively able to explain the findings of the research. However, there is a space that is not fully explained, namely how the negotiation process regarding the sharing of resources takes place and how each party determines the amount of its contribution. If the available documents only show the existence of resources and the sharing of contributions, then the research cannot conclude further about the internal negotiation process without additional empirical evidence.

**Beyond-the-Border Cooperation in Research Implementation**

The involvement of BGS and the University of Leeds with ITB, BRIN, and RDI shows that research is carried out through cross-border relationships. These interactions do not only occur at the level of institutional relationships, but also include knowledge production activities regarding disaster risk in the city of Bandung. The research includes the development of hazard scenarios, exposure modeling, and the development of community resilience (RDI, 2025). This condition is in accordance with the concept of beyond-the-border cooperation Paulo (2014). Paulo uses this concept to explain the form of implementation carried out jointly by actors from more than one country. In contrast to implementation that is only carried out by domestic actors, beyond-the-border cooperation shows that there is an implementation that requires cross-border interaction.

The case of Exposed clearly shows this character. The knowledge and expertise used in the research do not come from one institution or one country. Researchers from British and Indonesian institutions worked on a project directed at disaster risk issues in Bandung. Thus, the cross-border aspect is not only the background of the research, but

also part of the implementation process.

These findings provide support for the concept of Paulo (2014), especially in explaining that the implementation of international cooperation can take place through the direct involvement of cross-border actors. However, the concept does not fully explain the forms of scientific relationships that occur among actors, for example how knowledge is negotiated, how differences in methodology are resolved, or how joint scientific decisions are made. Thus, beyond-the-border indicators are able to explain the existence and forms of cross-border interactions, but still have limitations in explaining the internal dynamics of research collaboration.

**Behind-the-Border Cooperation in Implementation in the City of Bandung**

Although the research involved institutions from the UK, the implementation still took place in the domestic context of Indonesia. The city of Bandung became the location of the research, while the Bandung City Government and Indonesian institutions were part of the implementation of the activity. At the kick-off activity on June 8, 2025, the Bandung City Government and the West Java Provincial Government were involved in discussions with researchers (RDI, 2025).

These findings are in accordance with the concept of behind-the-border cooperation by Paulo (2014). According to Paulo, the implementation of international cooperation generally takes place within domestic borders. International cooperation is then translated through actions taken by national or local actors in accordance with domestic conditions and institutions (Paulo, 2014). In the case of Bandung, research supported by international cooperation still requires domestic institutions to provide local context, data, and relationships with the needs of local governments. This shows that the implementation of cooperation does not take place entirely outside the domestic structure. Local actors are part of the implementation process.

The findings also show the relationship between behind-the-border and beyond-the-border. The implementation of the research has a cross-border dimension because it involves BGS and the University of Leeds, but the activity still requires domestic actors to be applied in the context of the city of Bandung. However, Paulo's indicators still have limitations in explaining the depth of involvement of local actors. The concept of behind-the-border can indicate that there is domestic action, but it does not explain in detail whether local governments are only recipients of information, involved in research decision-making, or have an influence on the direction of research. To answer this part, more detailed data from PPID documents or other primary sources is needed.

**Knowledge and Research Results as Part of Implementation**

The Exposed project produces a study on seismic and volcanic threats, community and infrastructure exposure, and the resilience of the people of the city of Bandung. The research is directed to produce information that can help understand groups and regions that have a level of exposure to hazards (RDI, 2025). The production of knowledge has an important position when read through Paulo (2014). In his thinking about international cooperation, knowledge is one of the elements that allows the capacity of various actors to be used to support development needs. Therefore, knowledge can not only be seen as the end result of cooperation, but also as a resource that can be used in domestic action.

In the case of Bandung, the knowledge generated through the research is directly

related to local needs for understanding disaster risk. This shows the relationship between international cooperation and domestic public needs that has previously been explained through the concept of DPG Paulo (2014). However, there is a difference between generating knowledge and implementing that knowledge into policy. Data showing that research has resulted in a study has not automatically proven that the results of the research have been used by the Bandung City Government in policy changes, spatial planning, budgeting, or disaster risk reduction measures.

These distinctions are important. If the PPID or LKj document shows that the results of the research have been used in regional planning or policies, then the relationship between knowledge production and domestic action can be further proven. On the other hand, if the document only shows that the research has produced recommendations, then the research should stop at the conclusion that the implementation has successfully produced relevant knowledge, but that the use of that knowledge in policy has not been fully proven.

**Integration of the Implementation of International Cooperation in Exposed Projects**

Findings regarding the follow-up of cooperation, resource allocation and coordination, and the implementation of behind-the-border and beyond-the-border cooperation show that the implementation of Indonesia-UK cooperation in the Exposed project takes place through a series of interrelated actions. Cooperation does not stop at the formation of research projects, but is translated into research agendas, division of activities, resource mobilization, and coordination between Indonesian and UK institutions with government actors at the local level (RDI, 2025). This pattern shows that the implementation of international cooperation requires the process of translating commitments into activities that can be carried out by the parties.

These findings are in line with Paulo (2014) who looks at the implementation of international cooperation through follow-up actions, resource use, and involvement of actors within and beyond national borders. In the Exposed project, follow-up actions are seen through kick-off activities, research focus sharing, and coordination between research groups and local governments. Meanwhile, resource mobilization is seen through ISPF funding support as well as the involvement of human resources, expertise, data, and institutional capacity from Indonesian and UK institutions (RDI, 2025). Thus, implementation in this case takes place through a process that links cooperation decisions to the capacity required to carry out research.

The dimension of beyond-the-border cooperation can be seen from the involvement of BGS and the University of Leeds with ITB, BRIN, and RDI in the implementation of research. The cross-border interaction is not only in the form of institutional relationships, but also takes place in research activities on seismic and volcanic threats, community and infrastructure exposure, and community resilience (RDI, 2025). This shows that international cooperation is a direct part of the process of implementing activities, because research cannot be separated from the contributions of various institutions from two countries. These findings show that the international dimension in cooperation does not only lie in the origin of the institutions involved, but also in the connectivity of the capacities and expertise used in the implementation of research.

At the same time, the implementation of research continues to take place in the domestic context of the city of Bandung. The involvement of the Bandung City

Government and the West Java Provincial Government in kick-off activities shows the relationship between cross-border research activities and the needs and local institutional environment (RDI, 2025). This condition shows the behind-the-border cooperation dimension as explained by Paulo (2014), namely when international cooperation is translated into implementation that takes place in a domestic context. In this case, research activities that receive support from international cooperation still require domestic actors and institutions to connect research with local conditions.

The relationship between the two dimensions shows that the implementation of Indonesia-UK cooperation in the Exposed project takes place simultaneously in the international and domestic spaces. The research capacity of the UK and Indonesia is brought together through cross-border activities, but the implementation is still directed at problems in the context of the city of Bandung. This shows that the implementation of international cooperation in this case is not a process that takes place separately between international and domestic actors. On the contrary, the implementation of research shows that there is a relationship between cross-border resources and expertise and local needs and contexts.

However, findings regarding the follow-up of cooperation need to be distinguished between administrative actions and regulatory follow-ups. The available data show that there is coordination, division of activities, and arrangements for the implementation of research after the cooperation is established (RDI, 2025). These findings can be understood as a form of follow-up action that allows cooperation to be implemented. However, there is not enough evidence to show that there are regulatory changes, new administrative procedures, or formal policies that directly result from cooperation. Therefore, the indicator of further decision-making and regulatory actions in Paulo (2014's) thinking in this case is more visible in the aspect of taking follow-up actions to carry out cooperation rather than formal regulatory changes.

The findings also show that the results of cooperation in the form of knowledge need to be distinguished from their use in policy. The Exposed project is directed to produce an understanding of the threats and exposures of the community and infrastructure of the City of Bandung (RDI, 2025). This knowledge is relevant to domestic needs because it can provide a basis for information about disaster risk. However, the existence of research results has not by itself proven that the knowledge has been translated into changes in policies, spatial planning, budgeting, or risk reduction actions by local governments. Thus, based on the available data, the implementation of cooperation can be proven up to the stage of research implementation and knowledge production, while the use of research results as a domestic policy still requires further empirical evidence.

In this context, Paulo's (2014) thinking helps explain how domestic needs can be linked to the capacity obtained through international cooperation. The City of Bandung's need for knowledge about disaster risk becomes a domestic context that encourages the relevance of cooperation, while funding, expertise, human resources, data, and research capacity from various institutions are the resources that enable these activities to be carried out. Implementation then takes place through cross-institutional coordination in the domestic context and interaction between Indonesian and UK actors. Thus, the case of Exposed shows that international cooperation can function as a mechanism that brings together local needs with cross-border resources and capacities in a research activity.

The findings provide an understanding that the implementation of Indonesia-UK cooperation in the Bandung City disaster risk study is mainly seen in the process of

translating cooperation commitments into research activities through institutional coordination, resource mobilization, and involvement of domestic and international actors. Paulo (2014) can be used to explain the process through the aspects of follow-up actions, resource allocation and use, as well as behind-the-border and beyond-the-border cooperation. Meanwhile, the use of research results into domestic policies cannot be stated as part of the implementation that has been achieved because the available empirical evidence has not shown the direct application of research results in policy. With these limitations, the implementation of cooperation in the Exposed project can be understood mainly as a process of implementing cross-border collaboration that generates knowledge and brings together international capacity with the local needs of the city of Bandung.

This study shows that the implementation of Indonesia-UK international cooperation in disaster risk study in the City of Bandung through the project Exposed: Physical and Social Exposure to Seismic and Volcanic Threats in Bandung, Indonesia takes place through three main activities, namely the follow-up of cooperation through institutional arrangements and coordination, resource allocation and coordination, and the implementation of behind-the-border and beyond-the-border cooperation. The follow-up of cooperation can be seen from the translation of commitments into research agendas and activities involving Indonesian institutions, the United Kingdom, and local governments. The allocation and coordination of resources is realized through the support of funding, human resources, scientific expertise, data, and institutional capacity from various parties, while behind-the-border and beyond-the-border can be seen from the implementation of research in the domestic context of the City of Bandung as well as cross-border interaction in the production of knowledge about disaster risk.

Thus, the implementation of Indonesia-UK international cooperation in disaster risk studies in the City of Bandung does not stop at the formation of cooperation, but is translated into implementation arrangements, resource mobilization, inter-agency coordination, and the implementation of cross-border research to respond to disaster risk needs at the local level. These findings show that Paulo's thinking is quite capable of explaining the implementation process, especially in the aspects of resource allocation and coordination as well as behind-the-border and beyond-the-border cooperation. However, the regulatory follow-up aspect is only explained to the extent that there is a regulation and coordination of implementation, while the dynamics of knowledge production and its use into domestic policy have not been fully explained by the framework. This means that implementation in this case is more appropriately understood as an interactive process between domestic needs, international resources, institutional capacity, and cross-border research activities, rather than as a process that runs in a linear manner.

## CONCLUSION

The implementation of Indonesia-UK international cooperation in disaster risk studies in the City of Bandung through *the Exposed project* is carried out by translating cooperation into joint research activities through institutional coordination, resource sharing and utilization, as well as the involvement of Indonesian and British actors in the implementation of research. The implementation connects cross-border capacity and expertise with the needs of the City of Bandung in understanding disaster risk. Practically, the Bandung City Government needs to strengthen the use of research results in disaster

risk reduction planning and policies and maintain coordination with the research institutions involved. Academically, further research can examine how the results of research cooperation are translated into domestic policies and compare them with other forms of international cooperation in disaster management.

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